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Home Course In Road Making

V.—Basic Principles of Road Administration.

By LOGAN WALLER PAGE,
Director Office of Public Roads,
United States Department
of Agriculture.

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THE roads of the United States are worse than the roads of any other civilized country on the face of the globe, and our systems of road administration are for the most part extravagantly wasteful and totally inefficient and inadequate. Until within the past few years, the policy of extreme localization prevailed.



THIS ROAD WAS LOCATED AND CONSTRUCTED BY A COMPETENT HIGHWAY ENGINEER.

In all the states in the administration of the public roads, and today this policy prevails in a great majority of the states. It places upon the county and in most cases upon the road districts or townships the entire burden of constructing and maintaining roads and leaves to it the initiative as well as the final determination as to the policy which shall be pursued in carrying on the work.

Our road laws for the most part do not contemplate the necessity for skilled supervision in road work; hence most of the work is done under the direction of men who have no knowledge of road building and who have only a passing interest in it. This is a situation which is truly amazing, for skilled supervision is demanded in practically every line of work. To the trained road builder it is evident that no more prolific source of waste can be found than in unskilled supervision.

There are, including county and township officials, at least a hundred thousand road officials in the United States, each exercising a practically independent authority. Can we expect efficiency in an army in which all are officers and none is the rank and file?

In nearly every public or private enterprise some measure of skill is required of the men who are expected to carry on the work. When a building is to be erected a number of men, each skilled in his own craft, are employed. One does not find that this man is employed because he needs the money and that one because he is a good fellow and the other because he has political influence, but because he is a skilled carpenter, competent bricklayer, a trained and capable painter, etc., throughout the entire transaction.

The civil service of the United States is made up of people selected after examination. Our public schools are in charge of teachers who have been awarded certificates after proper preliminary training and examination.

Is it not surprising, therefore, that we are willing to intrust the expenditure of \$140,000,000 annually in the building and care of our public roads, so essential to our welfare and even our happiness to 100,000 men, most of whom are selected without any regard whatever for their technical and practical experience?

In order to have skilled supervision the technical training and experience of the highway engineer are necessary. There is a popular idea prevailing in some sections that engineers are not essential to road improvement. This, however, is a very erroneous idea. An engineer, by reason of his technical knowledge, can secure the easiest grade for a roadway, consistent with the traffic for which it is designed. By determining the drainage areas he is able to compute the proper size for culverts, he is able to design the bridges to suit the needs of traffic, to estimate the quantities and cost of materials, select proper road building materials and prepare plans and estimates. Furthermore, he stands between the community and the contractor and is able to give impartial justice to both.

road administration which is universally conceded to be the very acme of efficiency—namely, statute labor. Men who work out their tax do grudgingly because they think they are being imposed upon. They do poorly because it is a work which they know but little about. They render the least possible amount of service. It seems to be the general understanding that the object of a statute laborer should be to shirk work rather than to perform it. There is scarcely any attempt at discipline, and it is obvious that discipline with such an assemblage of workmen would be impossible.

Many of the states provide for working out the property road tax, and it has grown to be an even greater source of weakness than statute labor, for 1904 about \$26,500,000 of the proper tax was paid in labor, or, in other words, was practically wasted.

Opposition on the part of ultra conservatives to the general improvement of the public roads is frequently based on the belief that the advocates of road improvement contemplate surfacing with hard material the entire 2,000,000 miles of earth road in the United States. They point to the fact that to macadamize 2,000,000 miles, \$5,000 per mile would cost \$10,000,000,000. That this is a mistaken view of the subject can be easily demonstrated. When all the roads of the country are classified according to traffic requirements it will result in the elimination of many thousands of miles of totally unnecessary road and of many more thousands of miles by relocation, straightening of curves and various other expedients.

Careful investigations have been carried on in various parts of the country which prove that about 20 per cent of the roads accommodate about 90 per cent of the traffic, so that if the roads are to be improved in such a way as to do the greatest good to the greatest number it will be necessary to improve only about one-fifth of the total mileage with stone and other hard materials, leaving the rest to be taken care of as earth roads.

The whole subject of road improvement in the United States is now passing through a transitory stage. We are striving not only to meet the new conditions of traffic with new forms of construction, but our various state legislatures are actively engaged in endeavoring to meet the demand for road improvement by the enactment of suitable legislation and by the appropriation of the necessary funds.

We have tried many expedients in the administration of our public roads, among them the toll road system, which involves private control over a public utility. This is manifestly unsound in a public enterprise, and it is a source of gratification that the toll road system has been largely abandoned.

Even in the states which have followed a progressive policy during the last few years most of the roads are still under local control. Year by year we have been frittering away our millions maintaining the roads in their primitive condition until the yearly tribute of road taxes in the United States now amounts to over \$140,000,000 and our petty road officials have grown to an army more than 100,000 strong. The incompetence of a large number of officials is more difficult to remedy than the incompetence of a single official. It is manifestly impossible for a district or township with limited revenues to secure the assistance, advice and supervision of a high grade engineer, whereas in a centralized system the cost is so widely distributed as to impose but a slight burden on



THIS ROAD WAS REPAIRED UNDER THE STATUTE LABOR SYSTEM.

each of the smaller units. In the purchase of supplies and equipment a large saving can be effected by centralization, while in the reduction of personnel and in standardization of methods and equipment still greater economy results. It cannot fail to impress every thinking man that a system of extreme localization will mean an entirely unnecessary multitude of officials and irregular and ill directed road improvement.

It is apparent that the smallest unit for effective control in the administration of road affairs is the state, although excellent results have been obtained under county systems where all the roads are placed under the jurisdiction of a competent and skilled highway engineer or superintendent.

Our highway department, both county and state, should be entirely free and away from political influences. All road work should be placed in the hands of trained and experienced road builders, and all road taxes should be paid in cash. Road officials and caretakers should have sufficient compensation to justify them in devoting their entire time and attention to the work. Under such a system properly administered it will be possible to secure a dollar's worth of work for every dollar expended, which is certainly not the case at the present time, except where

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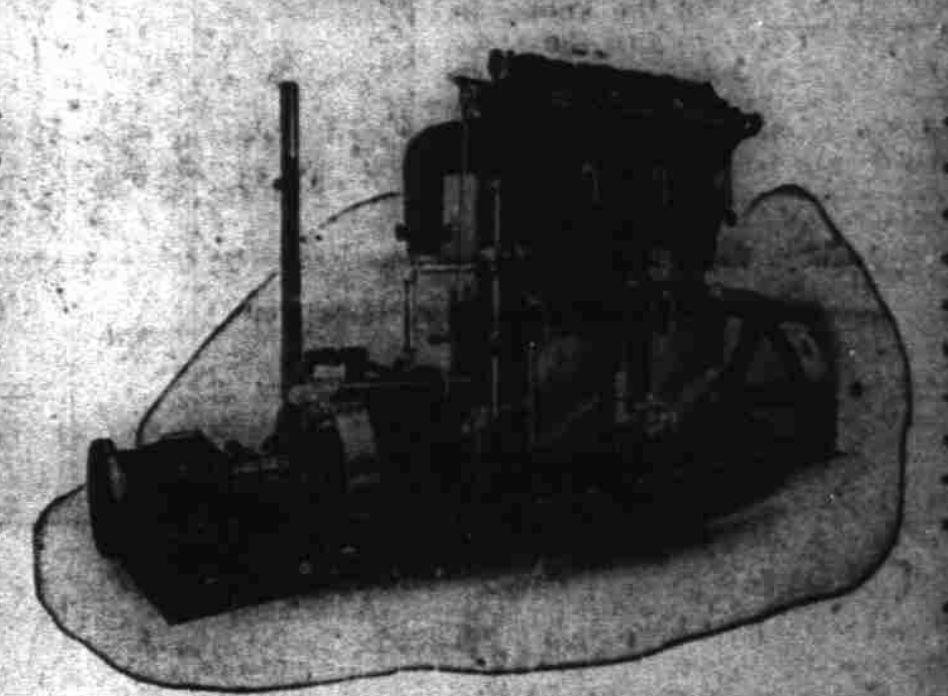
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